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(54) **Method for packaging meat**

(57) A method for packaging meat comprises the steps of:

- a) Cutting the meat into pieces;
- b) Cooking the meat pieces in oil under conditions sufficient only to seal the meat but not destroy all bacteria within the meat;
- c) Chilling the meat to 0-5°C and placing in a packaging container;
- d) Sealing the packaging container.

The meat may be injected with whey before step (b). Sauce and/or vegetables may be added before step (d).

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METHOD FOR PACKAGING MEATField of the Invention

5 The present invention relates to methods for packaging meat and more particularly, but not exclusively, to methods of preparing and packaging meat as pre-prepared meals.

Most relevant prior art known to the applicant

10 The convenience food industry has greatly expanded its market share in recent years. A wide range of pre-cooked meals are now on offer in all but the smallest supermarkets throughout the United Kingdom. These meals may be consumed hot or cold. In the former case they are simply heated for a matter of minutes in a microwave. In many of these pre-cooked meals the meal is complete in that it comprises, for example, meat, sauce and vegetables. Some pre-cooked products, however, simply comprise cooked e.g fish or
15 beef, in a sauce.

Essentially the consumer of a pre-cooked meal is saved the trouble of cooking the meal himself by the food manufacturer. A drawback of this arrangement is, however, that the food may not be sterile when it is consumed if it is infected following cooking
20 at the factory. This danger becomes particularly acute when a number of cooked or uncooked food items are combined in an ostensibly pre-cooked meal prior to packaging.

A further problem commonly associated with pre-cooked meat is that the meat has insufficient time to mature and is consequently

5 tougher and less flavoursome than meat bought fresh and cooked at home. A technique used in domestic cooking of meat to enhance the flavour of the meat is to seal the meat in oil before stewing or roasting. In culinary terms sealing of meat is understood to mean cooking of the external surface of the meat alone to provide an impermeable barrier. This barrier is relied upon primarily to prevent loss of juices from the meat.

10 It is a general objective of the present invention to provide a method which combines the advantages of factory pre-cooked and home cooked meat-containing meals.

Summary of the Invention

According to the present invention there is provided a method for packaging meat which comprises the steps of:

- a) Cutting the meat into pieces;
- 15 b) Cooking the meat pieces in oil under conditions sufficient only to seal the meat but not destroy all bacteria within the meat;
- c) Chilling the meat to 0-5°C and placing in a packaging container;
- 20 d) Sealing the packaging container.

Advantageously the meat is injected with whey before step b) commences.

25 Preferably in step b) of the method the conditions selected to seal the meat are equivalent to an the region of 500° Fahrenheit cooking temperature for a time of 3-5 minutes.

These conditions may be provided by frying, grilling or a variety of other known cooking methods. Preferably the meat is sealed by flame grilling.

5 Preferably in step b) the meat is conveyed automatically through the cooking apparatus.

Preferably, before sealing the packaging container, a sauce and/or vegetables are added to the meat.

Prior to sealing the meat, the meat may be seasoned.

10 During sealing of the packaging container the atmosphere within the container is preferably flushed with one or more gases.

Description of the preferred Embodiments

15 In one preferred embodiment a meat such as beef is injected with whey, diced, seasoned in flour, herbs and spices, coated in oil and conveyed through a radiant heat grill oven such as to be exposed to a temperature of 500° Fahrenheit for a 5 minute period before being placed in a cold store for chilling to 0-5° C. The meat is then placed in a plastics punnet, gravy is poured over the meat, carrots, onions and mushrooms are added to the meat and the punnet is sealed after flushing with carbon dioxide gas by
20 stretching an impermeable film over the top of the punnet and gluing the film to the rim of the punnet.

The manner in which the meat is cut, the nature of the seasoning, the nature of sauce and/or vegetables added to the meat, the nature of container and the precise manner in which it is sealed
25 are, of course, merely examples which may easily be substituted with alternative methods and means by the skilled reader.

The method of the present invention provides the opportunity for lactobacilli and other benign anaerobic bacteria to act upon the

meat subsequent to packaging of the meat and prior to cooking by the consumer. These bacteria will tenderise the meat and provide it with a sweeter flavour. The risk of contamination of the meat by extrinsic bacteria which may be pathogenic is minimised by the sealing of the meat. The lactobacilli and other benign bacteria within the sealed meat will also limit the risk of colonisation of the meat by foreign bacteria in an analogous fashion to the host protecting role of the normal human gut microflora.

Thus, by merely sealing the meat and not fully cooking it prior to packaging and sale the quality of the meat is enhanced as is the resistance of the meat to infection. The meat, as bought, will be less likely to be contaminated with pathogens than equivalent to the fully pre-cooked meat. Furthermore, any pathogens present on the meat will be destroyed by the remaining cooking stages undertaken by the consumer. Although the method of the present invention is marginally less convenient to the consumer because of the need to complete the cooking process the time saving is still substantial and the greater hygiene and improved quality of the meat will more than compensate for this disadvantage.

Improvement of meat quality may be ensured or further enhanced by inoculation of the meat with lactobacilli or other suitable bacteria by, for example, injecting the meat with whey.

An important criterion of the present invention is that the cooking conditions used to seal the meat are not such as to exceed a core temperature within the meat of 65°C, at which most bacteria are killed.

CLAIMS

1. A method for packaging meat which comprises the steps of:
 - a) Cutting the meat into pieces;
 - b) Cooking the meat pieces in oil under conditions
5 sufficient only to seal the meat but not destroy all bacteria within the meat;
 - c) Chilling the meat to 0-5°C and placing in a packaging container;
 - d) Sealing the packaging container.
- 10 2. A method for packaging meat according to Claim 1 in which the meat is injected with whey before step b) commences.
3. A method for packaging meat according to Claim 1 or Claim 2 in which in step b) of the method the conditions selected to seal the meat are equivalent to an the region of 500°
15 Fahrenheit cooking temperature for a time of 3-5 minutes.
4. A method for packaging meat according to Claim 3 in which the meat is sealed by radiant heat grilling.
5. A method for packaging meat according to any preceding Claim in which in step b) the meat is conveyed automatically
20 through the cooking apparatus.
6. A method for packaging meat according to any preceding Claim in which, before sealing the packaging container, a sauce and/or vegetables are added to the meat.

7. A method for packaging meat according to any preceding Claim in which, prior to sealing the meat, the meat is seasoned.
- 5 8. A method for packaging meat according to any preceding Claim in which, during sealing of the packaging container the atmosphere within the container is flushed with one or more gases.
9. A method for packaging meat substantially as described herein.

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